

ABBREVIATIONS

AC	AIR COMPRESSOR
AD	ACCESS DOOR
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AHU	AIR HANDLING UNIT
AMB	AMBIENT
APROX	APPROXIMATE
AS	AIR SEPERATOR
ATC	AUTOMATIC TEMPERATURE CONTROL
AVG	AVERAGE
AWT	AVERAGE WATER TEMPERATURE
BAS	BUILDING AUTOMATION SYSTEM
BDD	BACK DRAFT DAMPER
BFW	BOILER FEED WATER
BHP	BRAKE HORSEPOWER
BMS	BUILDING MANAGEMENT SYSTEM
BTUH	BRITISH THERMAL UNITS PER HOUR
CC	COOLING COIL
CD	CONDENSATE DRAIN
CDR	CONDENSER WATER RETURN
CDS	CONDENSER WATER SUPPLY
CFM	CUBIC FEET PER MINUTE
CFP	CHEMICAL FEED PUMPS
CHWR	CHILLED WATER RETURN
CHWS	CHILLED WATER SUPPLY
CLG	CEILING
CO	CLEANOUT
CO2	CARBON DIOXIDE
COMP	COMPRESSOR
COND	CONDENSER
CONV	CONVECTOR
CP	CONDENSATE PUMP
CPU	CENTRAL PROCESSING UNIT
CT	COOLING TOWER
CU	CONDENSING UNIT
CU FT	CUBIC FEET
CUH	CABINET UNIT HEATER
CV	COEFFICIENT, VALVE FLOW
CV	CONSTANT VOLUME
D	DEPTH
DB	DRY BULB TEMPERATURE
dB	DECIBEL
DEG or °	DEGREE
DIA or Ø	DIAMETER
DN	DOWN
DP	DIFFERENTIAL PRESSURE
DWG	DRAWING
DX	DIRECT EXPANSION
EA	EXHAUST AIR
EAT	ENTERING AIR TEMPERATURE
EBB	ELECTRIC BASEBOARD RADIATION
EDR	EQUIVALENT DIRECT RADIATION
EF	EXHAUST FAN
EFF	EFFICIENCY
ELEC	ELECTRICAL
ESP	EXTERNAL STATIC PRESSURE
ET	EXPANSION TANK
EUH	ELECTRIC UNIT HEATER
EVAP	EVAPORATOR
EWB	ENTERING WET BULB TEMPERATURE
EWT	ENTERING WATER TEMPERATURE
F	FAHRENHEIT
FCU	FAN COIL UNIT
FD	FIRE DAMPER
FD	FLOOR DRAIN
FD/SB	FIRE DAMPER WITH INTEGRAL SECURITY BARS
FM	FLOW METER
FOB	FLAT ON BOTTOM
FOF	FUEL OIL FILL
FOR	FUEL OIL RETURN
FOS	FUEL OIL SUPPLY
FOT	FLAT ON TOP
FOV	FUEL OIL VENT
FPM	FEET PER MINUTE
FPS	FEET PER SECOND
FS	FLOOR SINK
FSD	FIRE/SMOKE DAMPER
FT	FOOT OR FEET
G	GAS
GA	GAUGE
GAL	GALLONS
GND	GROUND
GPH	GALLONS PER HOUR
GPM	GALLONS PER MINUTE
GR	GRAINS
H	HEIGHT
H/C	HEATING/COOLING
HC	HEATING COIL
HD	HEAD
HP	HORSEPOWER
HPC	HIGH PRESSURE CONDENSATE
HPG	HIGH PRESSURE GAS
HPS	HIGH PRESSURE STEAM
HR	HOUR(S)
HT	HEAT
HTHW	HIGH TEMPERATURE HOT WATER

ABBREVIATIONS

HTHWR	HIGH TEMPERATURE HOT WATER RETURN
HTHWS	HIGH TEMPERATURE HOT WATER SUPPLY
HTR	HEATER
HUM	HUMIDIFIER
HV	HEATING/VENTILATION UNIT
HW	HOT WATER
HWR	HOT WATER RETURN
HWRP	HOT WATER RETURN PUMP
HWRR	HOT WATER REVERSE RETURN
HWS	HOT WATER SUPPLY
HX	HEAT EXCHANGER
HZ	FREQUENCY (CYC, PER SEC.)
ID	INSIDE DIAMETER
IN	INCHES
IN WG	INCHES OF WATER, GAUGE (PRESS.)
IW	INDIRECT WASTE
KEF	KITCHEN EXHAUST FAN
KW	KILOWATT
L	LENGTH
LA	LABORATORY COMPRESSED AIR
LAT	LEAVING AIR TEMPERATURE
LAV	LAVATORY
LBS/HR	POUNDS PER HOUR
LF	LINEAR FEET
LPC	LOW PRESSURE CONDENSATE
LPS	LOW PRESSURE STEAM
LV	LABORATORY VACUUM
LWT	LEAVING WATER TEMPERATURE
MA	MIXED AIR
MAU	MAKE-UP AIR UNIT
MAX	MAXIMUM
MBH	BTU PER HOUR (THOUSAND)
MD	MOTORIZED DAMPER
MECH	MECHANICAL
MFR	MANUFACTURER
MH	METAL HALIDE
MIN	MINIMUM
MPC	MEDIUM PRESSURE CONDENSATE
MPS	MEDIUM PRESSURE STEAM
N2	NITROGEN
N2O	NITROUS OXIDE
N.C.	NORMALLY CLOSED
N.O.	NORMALLY OPEN
N.T.S.	NOT TO SCALE
N/A	NOT APPLICABLE
NEC	NATIONAL ELECTRICAL CODE
NIC	NOT IN CONTRACT
OA	OUTSIDE AIR
PCD	PUMPED CONDENSATE DRAIN (COOLING)
PCR	PUMPED CONDENSATE RETURN (STEAM)
PD	PRESSURE DROP
PH or Ø	PHASE
PRV	PRESSURE REDUCING VALVE
PSI	POUNDS PER SQUARE INCH
PT	POTENTIAL TRANSFORMER
PVC	POLYVINYL CHLORIDE
RA	RETURN AIR
RG	REFRIGERANT GAS
RH	RELATIVE HUMIDITY
RHC	REHEAT COIL
RHG	REFRIGERANT HOT GAS
RL	REFRIGERANT LIQUID
RM	ROOM
RPD	REDUCED PRESSURE DEVICE
RPM	REVOLUTIONS PER MINUTE
RTU	ROOFTOP UNIT
S&R	SUPPLY AND RETURN
SA	SUPPLY AIR
SCP	STEAM CONDENSATE PUMP
SD	SMOKE DAMPER
SP	STATIC PRESSURE
SPEC	SPECIFICATION
SO	SQUARE
SS	STAINLESS STEEL
STD	STANDARD
TSTAT	THERMOSTAT
TD	TEMPERATURE DIFFERENCE
TEMP	TEMPERATURE
TSP	TOTAL STATIC PRESSURE
TYP	TYPICAL
UH	UNIT HEATER
V	VOLTAGE
VAC	VACUUM
VAV	VARIABLE AIR VOLUME
VD	VOLUME DAMPER
VEL	VELOCITY
VFD	VARIABLE FREQUENCY DRIVE
VIF	VERIFY IN FIELD
VOL	VOLUME
W	WATT
W	WIDTH
WB	WET BULB TEMPERATURE
WP	WEATHERPROOF
WPD	WATER PRESSURE DROP
WWM	WELDED WIRE MESH

HVAC SYMBOLS

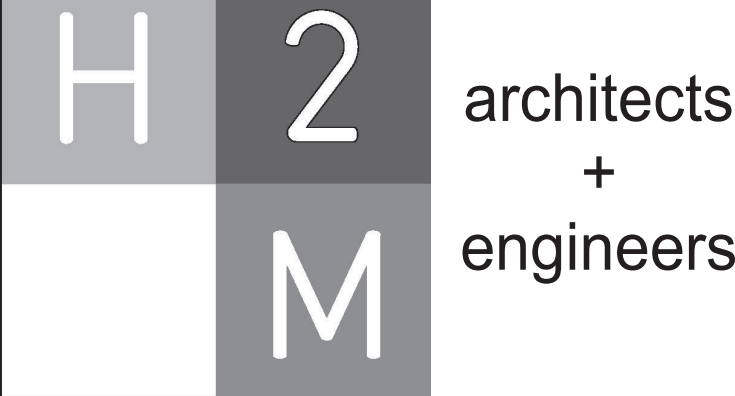
	RECTANGULAR, FLAT OVAL OR ROUND AIR DUCT
	AIR DUCT WITH ACOUSTICAL LINING
	SUPPLY AIR DUCT UP
	SUPPLY AIR DUCT DOWN
	RETURN AIR DUCT UP
	RETURN AIR DUCT DOWN
	EXHAUST AIR DUCT UP
	EXHAUST AIR DUCT DOWN
	TURNING VANES
	ACCESS DOOR
	FLEXIBLE DUCT CONNECTION
	CEILING SUPPLY DIFFUSERS
	CEILING RETURN / EXHAUST GRILLE
	HARD DUCTED DIFFUSER OR GRILLE WITH FULL SIZE BOTTOM TAKE-OFF
	DIRECTION OF SUPPLY OR OUTDOOR AIRFLOW
	DIRECTION OF RETURN OR EXHAUST AIRFLOW
	DOOR UNDERCUT
	BACK DRAFT DAMPER
	VOLUME DAMPER
	FIRE DAMPER
	FIRE DAMPER WITH INTEGRAL SECURITY BARS
	FIRE/SMOKE DAMPER
	SMOKE DAMPER SYSTEM AND ASSOCIATED DEVICES PER SPECIFICATIONS AND MEP DETAILS
	MOTORIZED DAMPER
	HUMIDIFIER TUBE/PANEL
	SUPPLY PIPING, REFER TO ABBREVIATION LIST FOR DESIGNATION (XXX)
	RETURN PIPING, REFER TO ABBREVIATION LIST FOR DESIGNATION (XXX)
	DUCT SMOKE DETECTOR WITH REMOTE INDICATING LIGHT AND TEST SWITCH
	DUCT STATIC PRESSURE SENSOR
	DIFFERENTIAL PRESSURE SENSOR
	VARIABLE FREQUENCY DRIVE
	AIR FLOW STATION
	DUCT SOUND ATTENUATOR
	ROOM THERMOSTAT
	ROOM TEMPERATURE SENSOR
	CARBON MONOXIDE SENSOR
	CARBON DIOXIDE SENSOR
	HUMIDISTAT
	FINNED TUBE RADIATION
	FLOW METER
	VRF REMOTE CONTROL

FITTINGS AND VALVES

	BACKFLOW PREVENTOR
	STRAINER OR STRAINER WITH BLOW-DOWN VALVE HOSE END, CAP AND CHAIN
	PIPE ELBOW UP OR PIPE TEE UP
	PIPE ELBOW DOWN
	PIPE TEE DOWN
	TAKEOFF FROM BOTTOM OF MAIN PIPE
	TAKEOFF FROM TOP OF MAIN PIPE
	IN-LINE EXPANSION COMPENSATOR
	PIPE ANCHOR
	COMPANION FLANGE
	PIPE CAP OR CAPPED END OF PIPE
	UNION
	PIPE GUIDES
	PUMP
	DIRECTION OF FLUID FLOW
	VALVE ON RISER
	VALVE ON DROP
	AIR VENT
	FLOW SENSOR
	2-WAY CONTROL VALVE
	3-WAY CONTROL VALVE
	BALL VALVE
	CALIBRATED BALANCING VALVE
	SHUT-OFF VALVE (SEE SPECIFICATIONS FOR APPLICATION TYPE)
	BUTTERFLY VALVE
	CHECK VALVE
	GLOBE VALVE
	GATE VALVE
	PRESSURE REDUCING VALVE
	TRIPLE DUTY VALVE
	OS&Y VALVE
	DRAIN VALVE WITH HOSE END, CAP & CHAIN OR WALL HYDRANT / HOSE BIBB
	MOTORIZED BUTTERFLY VALVE
	PRESSURE RELIEF SAFETY VALVE
	AQUASTAT
	TEMPERATURE SENSOR WITH SEPARABLE SOCKET IN IMMERSIBLE WELL
	TEMPERATURE GAUGE WITH SEPARABLE SOCKET IN IMMERSIBLE WELL
	THERMOMETER WITH SEPARABLE SOCKET IN IMMERSIBLE WELL
	PRESSURE GAUGE
	PRESSURE SENSOR WITH SYPHON (STEAM)
	FLEXIBLE CONNECTOR
DUCT SIZING	
20x12	RECTANGULAR DUCT
20/12	FLAT OVAL DUCT
20"ø	ROUND DUCT

HVAC GENERAL NOTES

- ALL WORK SHALL BE PERFORMED IN COMPLIANCE WITH CURRENT APPLICABLE CODES, ORDINANCES, THE REGULATORY AGENCIES HAVING JURISDICTION AND THE SPECIFICATIONS. THE SPECIFICATIONS MAY EXCEED THE REQUIREMENTS OF THE CODE, IN WHICH CASE, THE SPECIFICATION MUST BE FOLLOWED.
- THE INTENT OF THESE DOCUMENTS IS FOR THE MEP TRADES TO FURNISH AND INSTALL COMPLETE MECHANICAL AND ELECTRICAL SYSTEMS. THE SPECIFIED HVAC SYSTEM SHALL BE COMPLETE IN ALL RESPECTS; OPERATIONAL, TESTED, ADJUSTED, APPROVED BY THE AUTHORITIES HAVING JURISDICTION AND READY FOR BENEFICIAL USE BY THE OWNER.
- THE TRADES SHALL OBTAIN AND REVIEW ALL CONTRACT DOCUMENTS BEFORE SUBMITTING A BID. INFORMATION IS PROVIDED ON THE VARIOUS DRAWINGS, SCHEDULES, SPECIFICATIONS AND ALL OF THE VARIOUS DOCUMENTS IN THE BIDDING PACKAGE. THE CONTRACT DOCUMENTS ARE COMPLEMENTARY AND FORM A TOTAL PROJECT DESIGN AND INFORMATION SOURCE FOR CONSTRUCTION PURPOSES.
- THE DRAWINGS ARE DIAGRAMMATIC AND INDICATE THE GENERAL ARRANGEMENT OF SYSTEMS AND WORK INCLUDED IN THE CONTRACT. COORDINATE LOCATIONS OF EQUIPMENT WITH OTHER TRADES BEFORE AND DURING CONSTRUCTION. ANY MODIFICATION TO THE EQUIPMENT LAYOUT, REQUIRED FOR INSTALLATION, IS TO BE PERFORMED UNDER THE CONTRACT AGREEMENT, AT NO ADDITIONAL COST. REFER TOP DETAILS, SCHEDULES AND SPECIFICATIONS FOR ADDITIONAL INFORMATION.
- THE CONTRACTOR SHALL BECOME THOROUGHLY FAMILIAR WITH THE PROJECT DOCUMENTS OF ALL TRADES. THE DRAWINGS ARE DIAGRAMMATIC AND SHOW THE GENERAL ARRANGEMENT OF EQUIPMENT AND PIPING. THE CONTRACTOR SHALL COORDINATE THE EXACT LOCATION OF EQUIPMENT AND PIPING INSTALLATION WITH ALL THE TRADES BEFORE COMMENCING WORK.
- EQUIPMENT SHALL BE INSTALLED IN ACCESSIBLE LOCATIONS, WHEN EQUIPMENT MUST BE LOCATED ABOVE AN INACCESSIBLE CEILING (GYP BOARD OR EQUIVALENT), OR BEHIND A WALL, AN APPROPRIATE ACCESS DOOR SHALL BE PROVIDED. IF AN ACCESS DOOR IS REQUIRED, IT SHALL BE OF A RATING APPROPRIATE FOR THE WALL/CEILING IN WHICH IT IS TO BE INSTALLED. THE CONTRACTOR SHALL COORDINATE LOCATIONS OF ACCESS PANELS FOR ALL VALVES AND DEVICES, REQUIRING ACCESS, WITH THE ARCHITECT, PRIOR TO INSTALLATION OF SUCH DEVICES OR OTHER APPURTENANCES.
- WHERE A CONFLICT OCCURS BETWEEN THE DOCUMENTS, IT SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT. CARRY AS PART OF THE BID THE LARGER QUANTITY AND/OR MORE EXPENSIVE ITEM(S).
- THIS CONTRACT SHALL INCLUDE ALL THE NECESSARY PIPING, FITTINGS, TRANSITIONS ETC. AS REQUIRED TO INSTALL PIPING AND EQUIPMENT, AND TO AVOID ANY CONFLICTS WITH OTHER TRADES AND THE BUILDING STRUCTURE. THE CONTRACTOR SHALL BE HELD RESPONSIBLE FOR ANY ASSUMPTIONS, OMISSIONS OR ERRORS HE MAKES AS A RESULT OF HIS FAILURE TO COORDINATE WITH OTHER TRADES OR BECOME FULLY FAMILIAR WITH THE PROJECT DOCUMENTS OF ALL TRADES.
- DO NOT INSTALL ANY PIPING OVER ELECTRICAL PANELS, TRANSFORMERS, SPECIAL EQUIPMENT, OR THROUGH ELECTRICAL ROOMS, DATA ROOMS, ELEVATOR MACHINE ROOM, STAIRWELL OR STAIRWELL WALLS THAT ARE NOT ASSOCIATED WITH OR SERVE THE RESPECTIVE ROOMS. COORDINATE THE LOCATION OF ELECTRICAL EQUIPMENT IN THE FIELD AND ADJUST AS NECESSARY.
- INSTALL SMOKE DETECTORS IN BOTH SUPPLY & RETURN AIR DUCTS FOR AIR HANDLING EQUIPMENT 2,000 CFM AND GREATER.
- PROVIDE SMOKE DAMPERS IN BOTH SUPPLY & RETURN AIR DUCTS FOR AIR HANDLING EQUIPMENT 15,000 CFM AND GREATER.
- PROVIDE SMOKE DAMPERS AND SMOKE DETECTORS AT DUCT PENETRATIONS OF SMOKE-BRRIERS, AND AT ELEVATOR SHAFT VENTS PER CODE REQUIREMENTS.
- PROVIDE FIRE DAMPERS AT DUCT PENETRATIONS OF FIRE-RATED CONSTRUCTION, INCLUDING WALLS, SHAFTS AND FLOOR PENETRATIONS. COORDINATE WITH ARCHITECTURAL DRAWINGS.
- PROVIDE AN AUTOMATIC TEMPERATURE CONTROL SYSTEM COMPLETE IN ALL REGARDS. ALL ZONES, VAV'S AND SYSTEM SHALL BE THERMOSTATICALLY CONTROLLED. REVIEW THE PLANS AND SPECIFICATIONS OF ALL MEP TRADES FOR A COMPLETE SCOPE OF THE WORK.
- PIPING SHALL BE SUPPORTED FROM STRUCTURE ABOVE. TO MAXIMIZE HEAD ROOM, INSTALL PIPING TIGHT TO BOTTOM OF BEAMS WHEN RUNNING PERPENDICULAR TO BEAM; INSTALL PIPING TIGHT TO FLOOR SLAB WHEN RUNNING PARALLEL TO BEAM; PROVIDE ALL NECESSARY FITTINGS AND TRANSITIONS.
- PROVIDE THROTTLING VALVES AND SHUT-OFF VALVES AS INDICATED IN SPECIFICATIONS IN ADDITION TO THOSE INDICATED ON THE DOCUMENTS.
- INSTALL ALL EQUIPMENT VALVES AS REQUIRED BY MANUFACTURERS INSTRUCTIONS AND RECOMMENDATIONS AND AS DETAILED.
- PROVIDE AIR VENTS AT ALL HIGH POINTS AND DRAINS AT ALL LOW POINTS.
- PROVIDE PRESSURE RELIEF DOORS FOR AIR SYSTEMS, PER THE SPECIFICATIONS.
- PROVIDE MOTORIZED DAMPERS AT ALL PERMANENT OPENINGS (EXHAUST, SUPPLY, RELIEF, O.A. INTAKES, MAKE-UP AIR, SMOKE VENTS, ETC.) EXCEPT DRYER, KITCHEN, AND FUME EXHAUST AND PROVIDE A MEANS TO CONTROL THE DAMPER OPERATION.
- ALL SUPPLY RECTANGULAR 90° ELBOWS SHALL HAVE TURNING VANES.
- PROVIDE DUCT TAKE-OFF TYPES AND VOLUME DAMPERS PER THE SPECIFICATIONS AND DUCT TAKE-OFF DETAILS ON DRAWINGS. TAKE-OFFS SHOWN ON FLOOR PLANS DO NOT REPRESENT THE SPECIFIC TYPE OF TAKE-OFF REQUIRED; CONSULT THE DETAILS AND SPECIFICATIONS.
- PROVIDE VOLUME DAMPERS ON ALL SUPPLY, EXHAUST, AND RETURN BRANCH DUCTS.
- COORDINATE AND VERIFY LOCATIONS OF ALL ITEMS REQUIRING ACCESS WITH ARCHITECT IN FIELD., INCLUDING VALVES, VOLUME DAMPERS, FIRE DAMPERS, ETC.
- ALL EQUIPMENT LOCATED ON THE ROOF THAT REQUIRES SERVICING SHALL BE LOCATED A MINIMUM 10'-0" FROM EDGE OF THE ROOF.
- ALL EXPOSED DUCTWORK SHALL BE FLAT, OVAL, OR ROUND. COORDINATE WITH ARCHITECT'S CEILING PLANS AND IDENTIFY ON DUCTWORK SHOP DRAWINGS.
- ALL DUCTWORK AND PIPING CROSSING SEISMIC JOINTS SHALL ACCOMMODATE DIFFERENTIAL MOTION. REFER TO DETAILS AND SPECIFICATIONS FOR MORE INFORMATION. SEE ARCHITECTURAL AND STRUCTURAL DRAWINGS FOR LOCATIONS.
- ALL THERMOSTATS LOCATED ON OUTSIDE WALL SHALL HAVE INSULATED PAD BEHIND.
- ALL MOTORIZED DAMPERS SHALL BE WIRED BY ATC CONTRACTOR, COORDINATE VOLTAGE REQUIREMENTS WITH EQUIPMENT.
- ALL TOILETS & BATHROOMS SHALL HAVE 3/4" UNDERCUT DOORS.
- ALL LOUVERS ARE SELECTED AND SCHEDULED BY ARCHITECT. LOUVER TAGS ARE SHOWN FOR COORDINATION ONLY.
- SEISMICALLY SUPPORT THE EQUIPMENT AS REQUIRED BY CODE, THE AUTHORITY HAVING JURISDICTION, AND/OR AS SPECIFIED. SUBMIT ENGINEERED INSTALLATION DETAILS PER THE SPECIFICATIONS. THE CONTRACTOR'S SEISMIC ENGINEER SHALL REVIEW THE INSTALLATION AND PROVIDE A DETAILED REPORT FOR THE RECORD.
- PROVIDE PIPE EXPANSION COMPENSATION FOR THE VARIOUS PIPING SYSTEMS. SUBMIT ENGINEERED DETAILS FOR APPROVAL AND VERIFY INSTALLATION IS IN ACCORDANCE WITH THE CODE. THE CONTRACTOR'S CONSULTING ENGINEER SHALL REVIEW THE INSTALLATION AND PROVIDE A REPORT OF THE FINDINGS.



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CONSULTANTS:

MEP: Kenneth A. Hipsky, P.E., LEED AP  
243 Godfrey Road  
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MARK	DATE	DESCRIPTION

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PROJECT NO: <b>CARM1902</b>	DATE: <b>3/22/2021</b>	SCALE: <b>AS SHOWN</b>	

CLIENT

**CARMEL FIRE  
DEPARTMENT INC.**

ADDITION/RENOVATION



94 GLENEIDA AVE,  
CARMEL HAMLET NY, 10512

CONTRACT

**CONTRACT G  
GENERAL CONSTRUCTION**

STATUS

**BID SET**

SHEET TITLE

**MECHANICAL GENERAL  
INFORMATION**

DRAWING No.

**M 001**



**CONSULTANTS:**

**MEP: Kenneth A. Hipsky, P.E., LEED AP**  
243 Godfrey Road  
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CLIENT	<b>CARMEL FIRE DEPARTMENT INC.</b>
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### ADDITION/RENOVATION



94 GLENEIDA AVE,  
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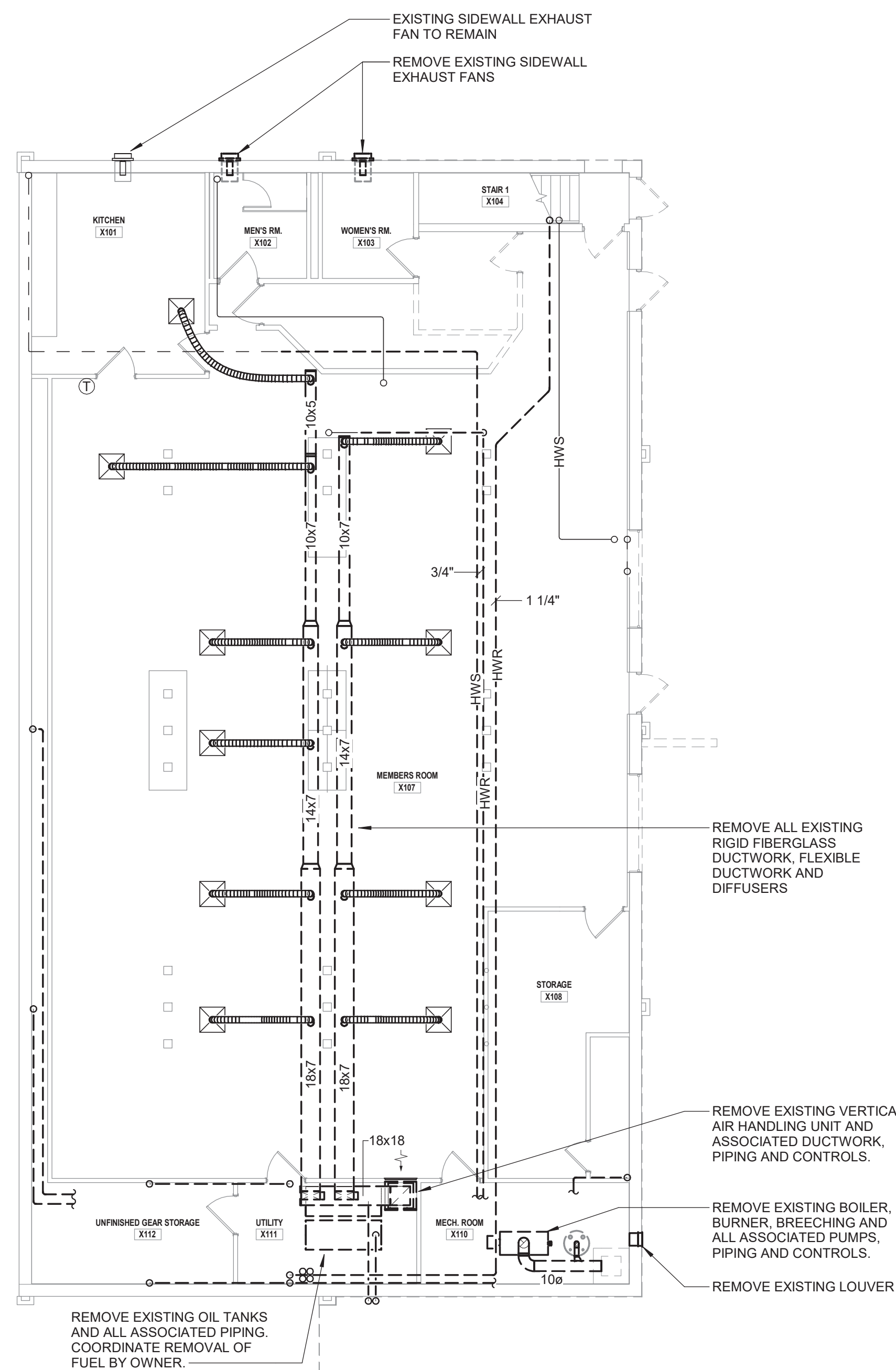
CONTRACT	<b>CONTRACT G</b> <b>GENERAL CONSTRUCTION</b>
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STATUS	BID SET
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SHEET TITLE

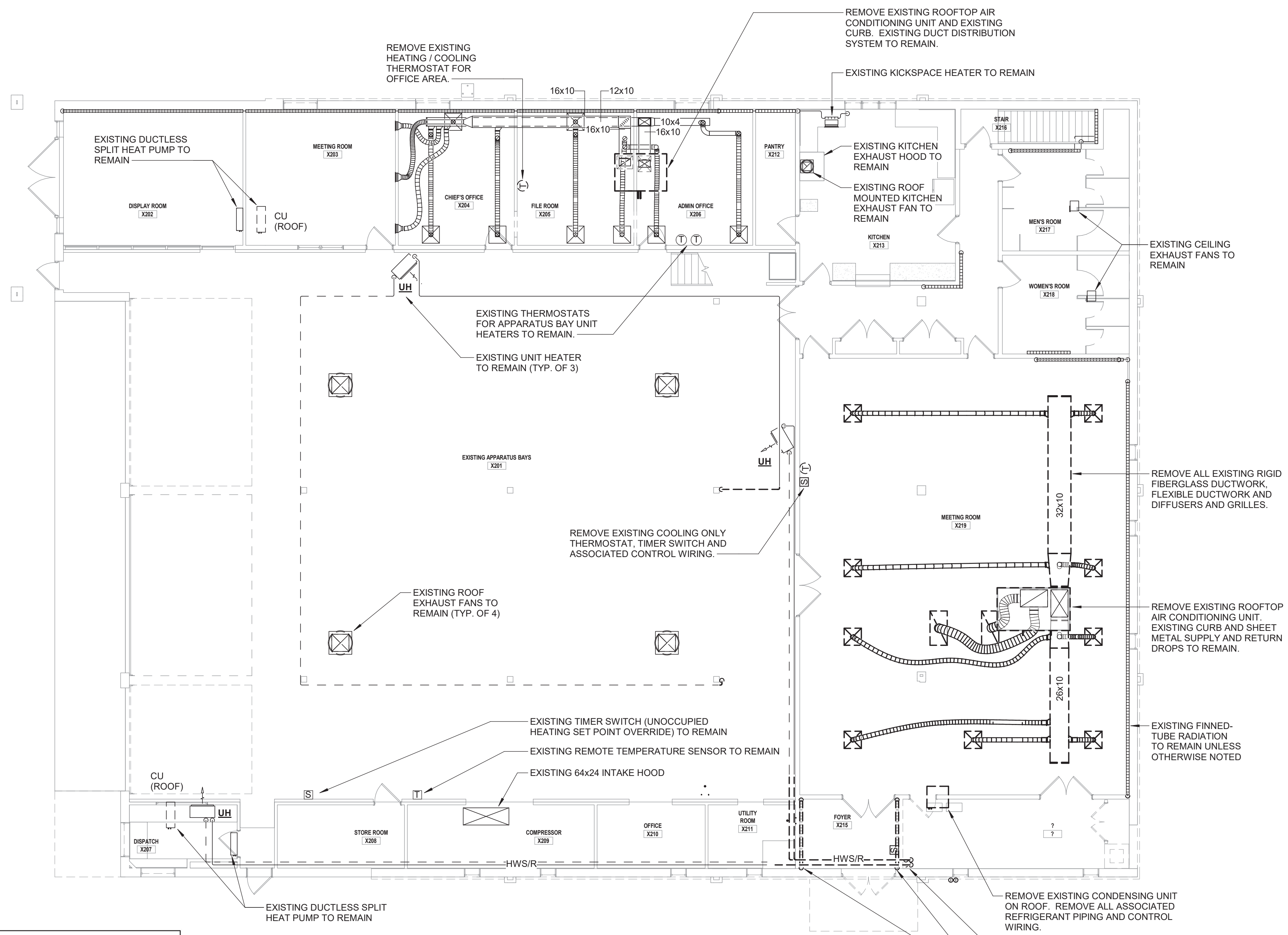
**MECHANICAL  
DEMOLITION PLANS**

DRAWING No. **MD 101**



1 FIRST FLOOR MECHANICAL DEMOLITION PLAN  
1/8" = 1'-0"

<u>LEGEND</u>	
{—————}	EXISTING TO REMAIN
{— — —}	EXISTING TO BE REMOVED



② SECOND FLOOR MECHANICAL DEMOLITION PLAN  
1/8" = 1'-0"

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### ADDITION/RENOVATION



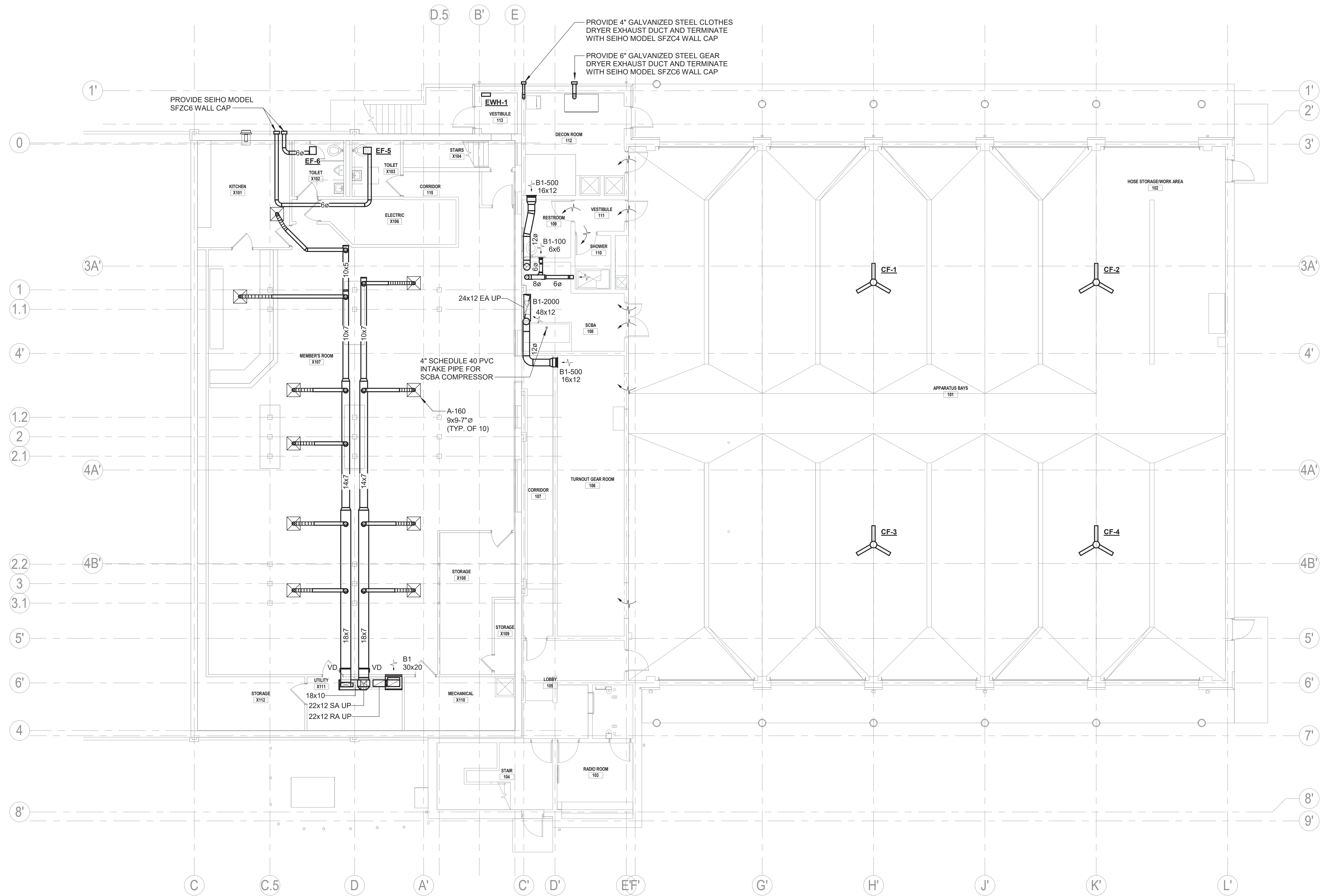
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**CONTRACT G**  
**GENERAL CONSTRUCTION**

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### FIRST FLOOR MECHANICAL DUCT PLAN

# M 101



1 FIRST FLOOR MECHANICAL DUCT PLAN  
1/8" = 1'-0"



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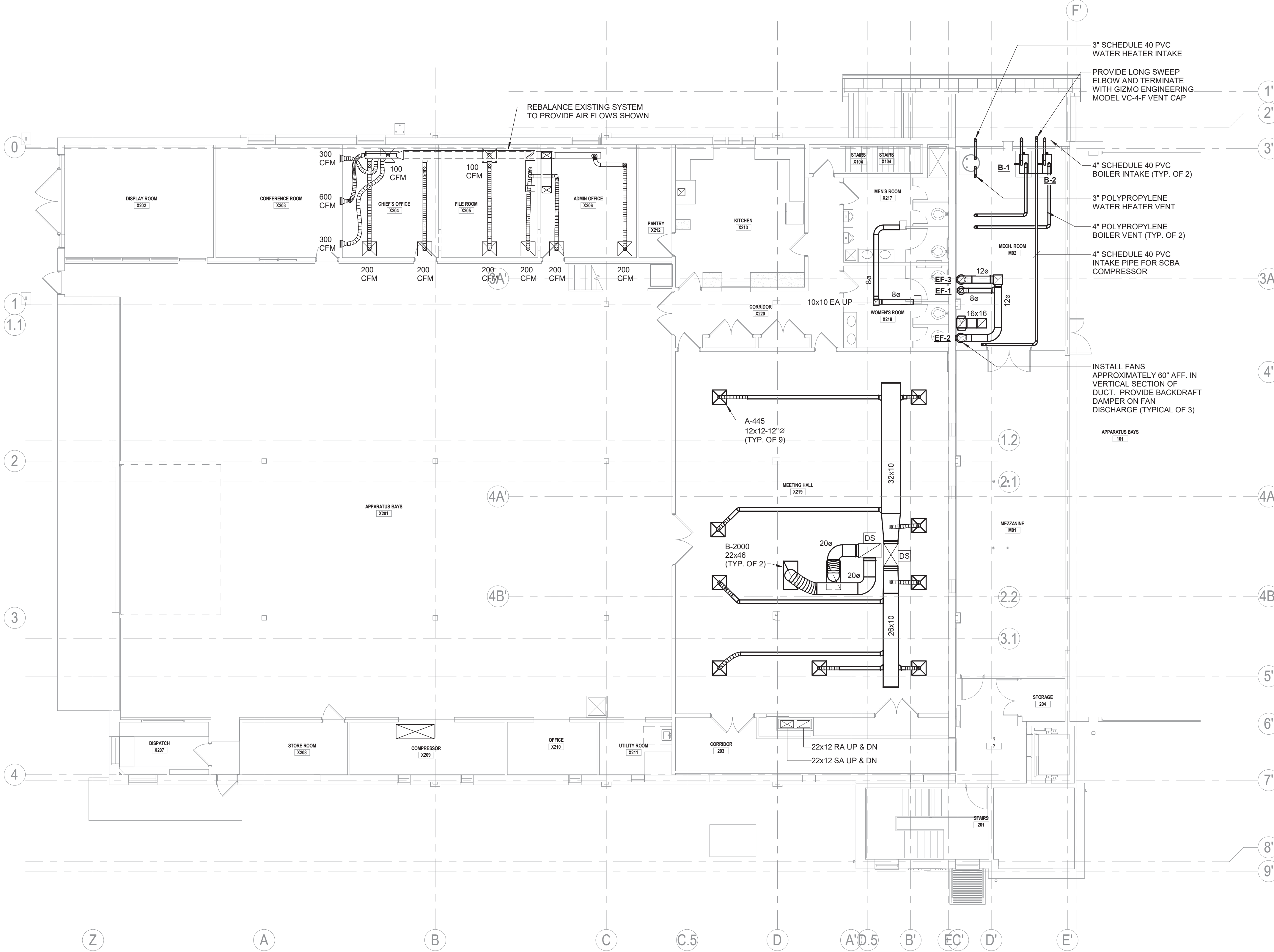
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GENERAL CONSTRUCTION

STATUS  
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SHEET TITLE  
SECOND FLOOR  
MECHANICAL DUCT PLAN

DRAWING No.  
M 102



1 SECOND FLOOR MECHANICAL DUCT PLAN  
1/8" = 1'-0"

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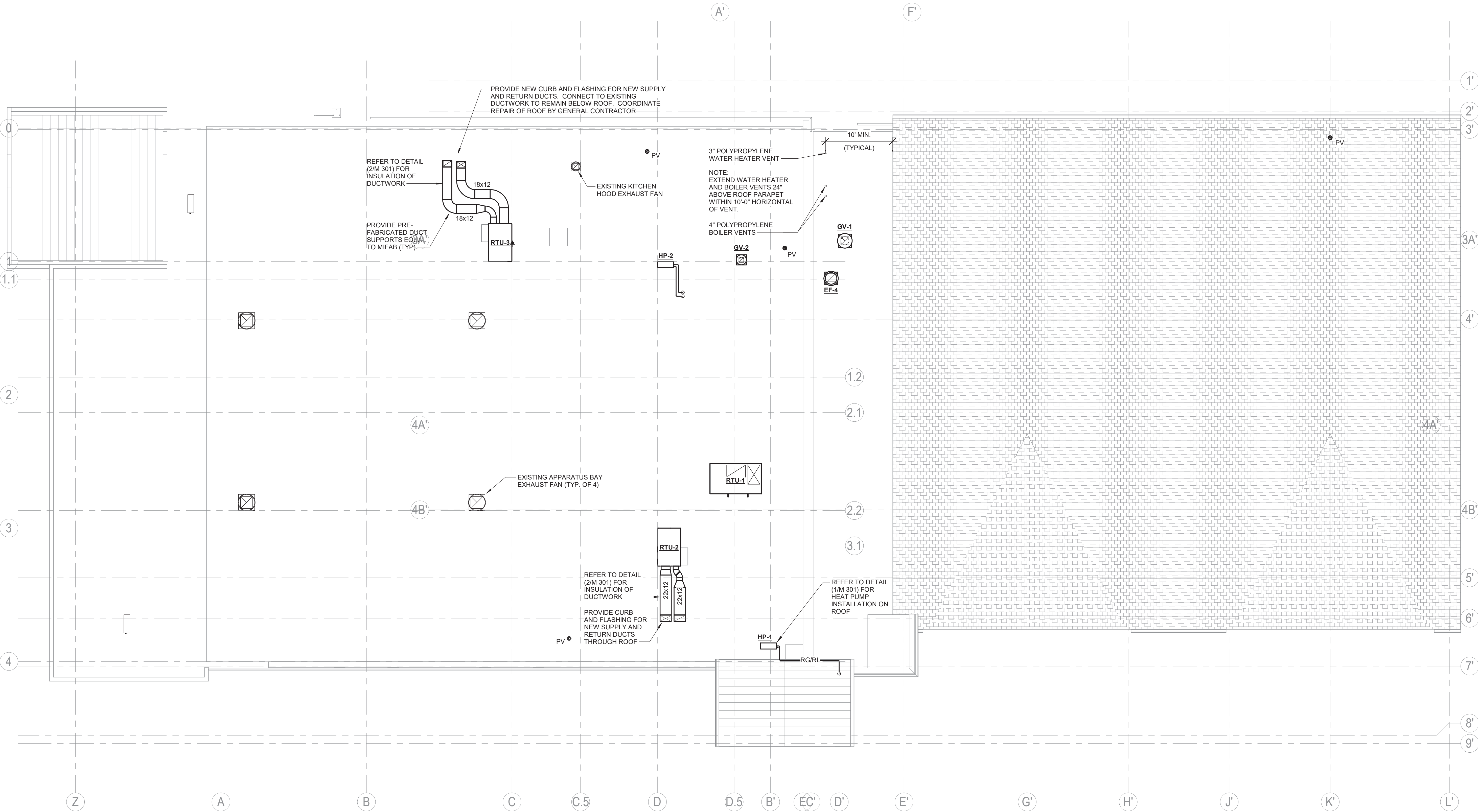
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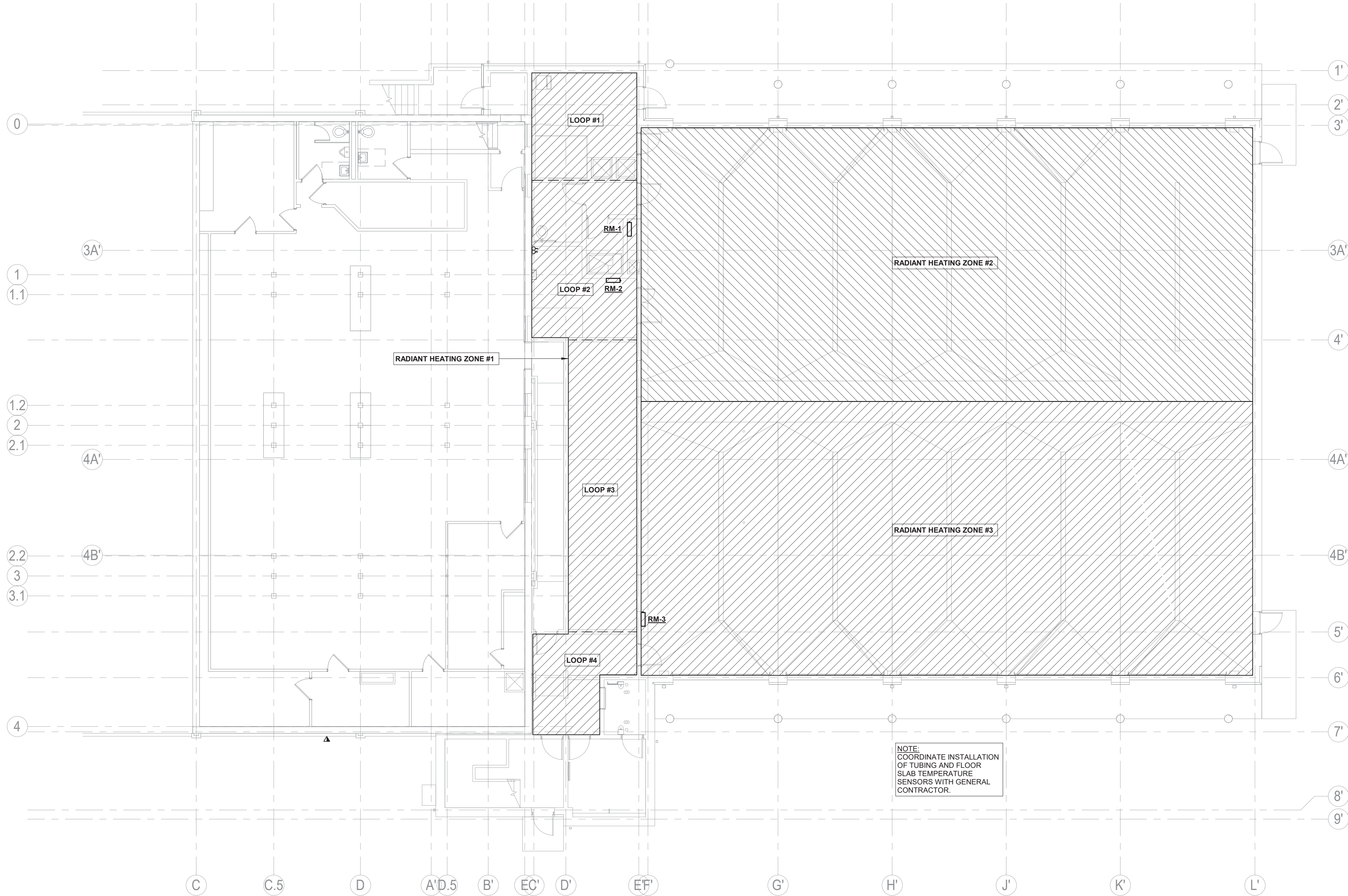
SHEET TITLE  
MECHANICAL ROOF PLAN

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M 103





BIM 380/20-265 Carmel NY Fire Dept./MEP\_20-265\_CARMEL NY FIRE DEPT.rvt  
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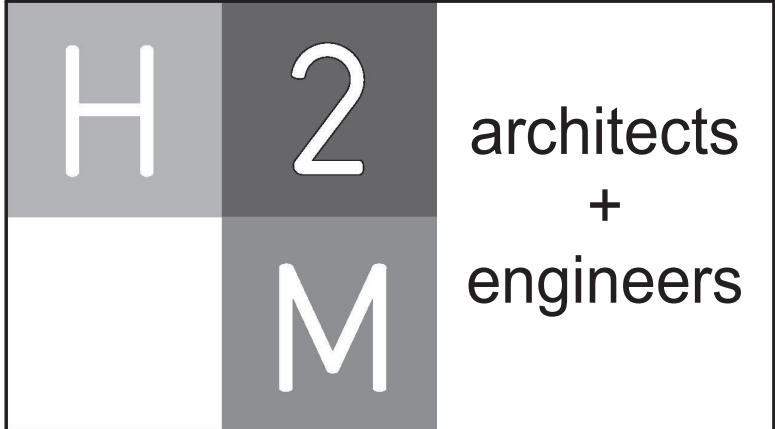
1 FIRST FLOOR MECHANICAL RADIANT FLOOR PIPING PLAN  
1/8" = 1'-0"

RADIANT MANIFOLD SCHEDULE											
TAG	MANUFACTURER	MODEL	CAPACITY / BTUH	NO. LOOPS	TUBING			FLOW			
					SPACING	SIZE	MAX. LENGTH	GPM	WPD FT H2O	EWT DEG. F	WTD DEG. F
RM-1	WATTS RADIANT	RADIANT PEX+	41,391	4	12"	3/4"	500' - 0"	4.5	4.7	104.9	20
RM-2	WATTS RADIANT	RADIANT PEX+	108,000	8	12"	3/4"	500' - 0"	11.7	10.1	105.1	20
RM-3	WATTS RADIANT	RADIANT PEX+	108,000	8	12"	3/4"	500' - 0"	11.7	10.1	105.1	20

NOTES:

1. BASIS OF DESIGN: WATTS RADIANT "RADIANT PEX+"

2. PROVIDE STAINLESS STEEL MANIFOLDS HOUSED IN SURFACE MOUNTED SATIN COATED STEEL (READY FOR FIELD PAINTING) MANIFOLD BOX WITH KEY LOCK.



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**CARMEL FIRE DEPARTMENT INC.**

ADDITION/RENOVATION

94 GLENEIDA AVE,  
CARMEL HAMLET NY, 10512

CONTRACT	CONTRACT G GENERAL CONSTRUCTION
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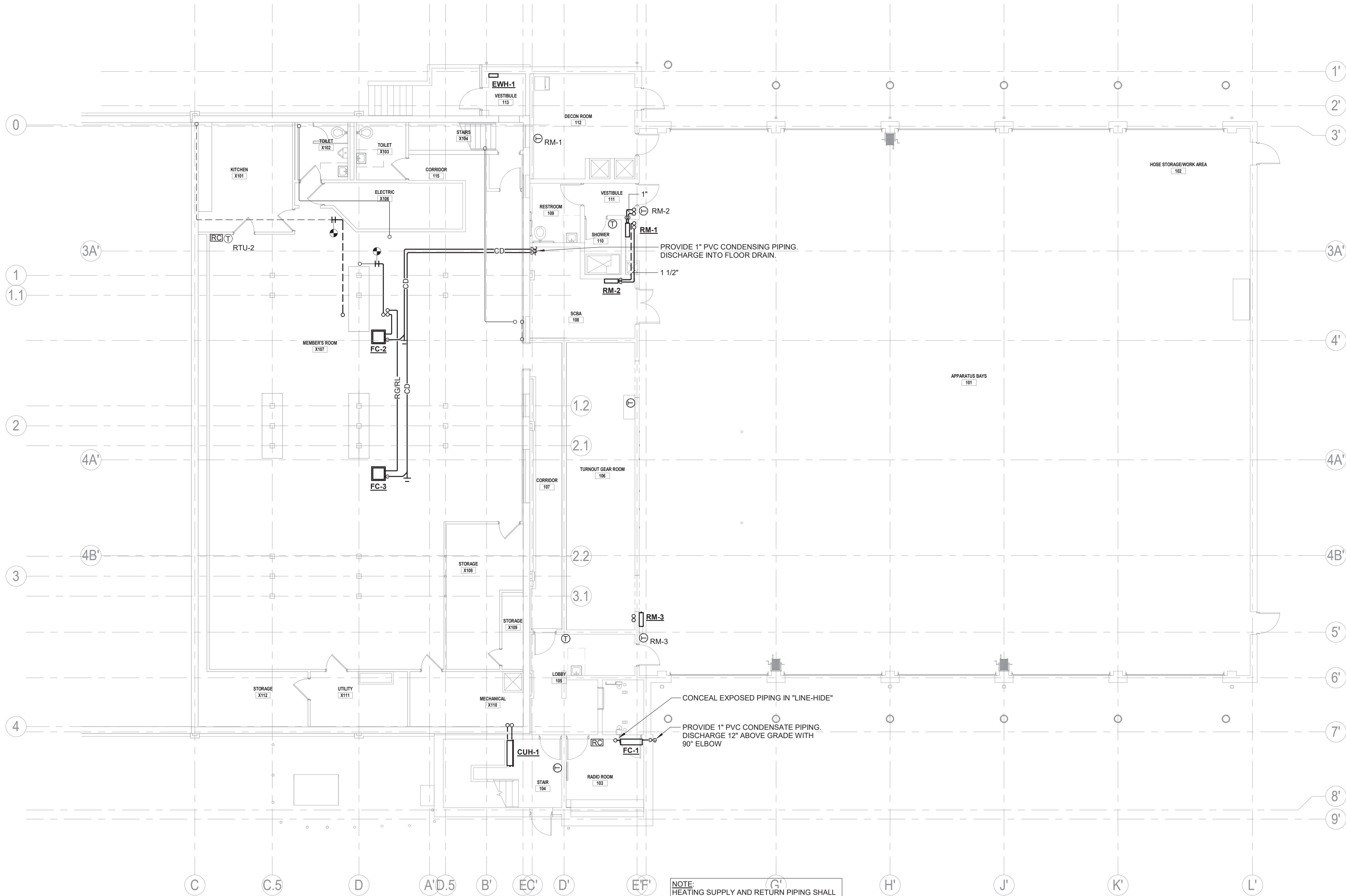
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SHEET TITLE	MECHANICAL RADIANT FLOOR PIPING PLAN
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DRAWING No.	M 200
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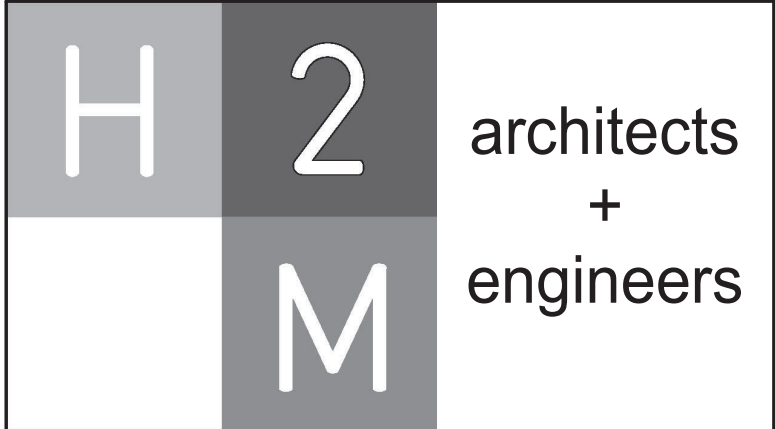
BIM 360/20-265 Carmel NY Fire Dept./MEP\_20-265\_CARMEL NY FIRE DEPT.rvt

3/22/2021 3:40:50 PM



1 FIRST FLOOR MECHANICAL PIPE PLAN  
1/8" = 1'-0"

NOTE:  
HEATING SUPPLY AND RETURN PIPING SHALL  
BE 3/4" UNLESS OTHERWISE INDICATED.



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CONSULTANTS:  
MEP: Kenneth A. Hipsky, P.E., LEED AP  
243 Godfrey Road  
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SHEET TITLE  
FIRST FLOOR  
MECHANICAL PIPE PLAN

DRAWING No.  
M 201



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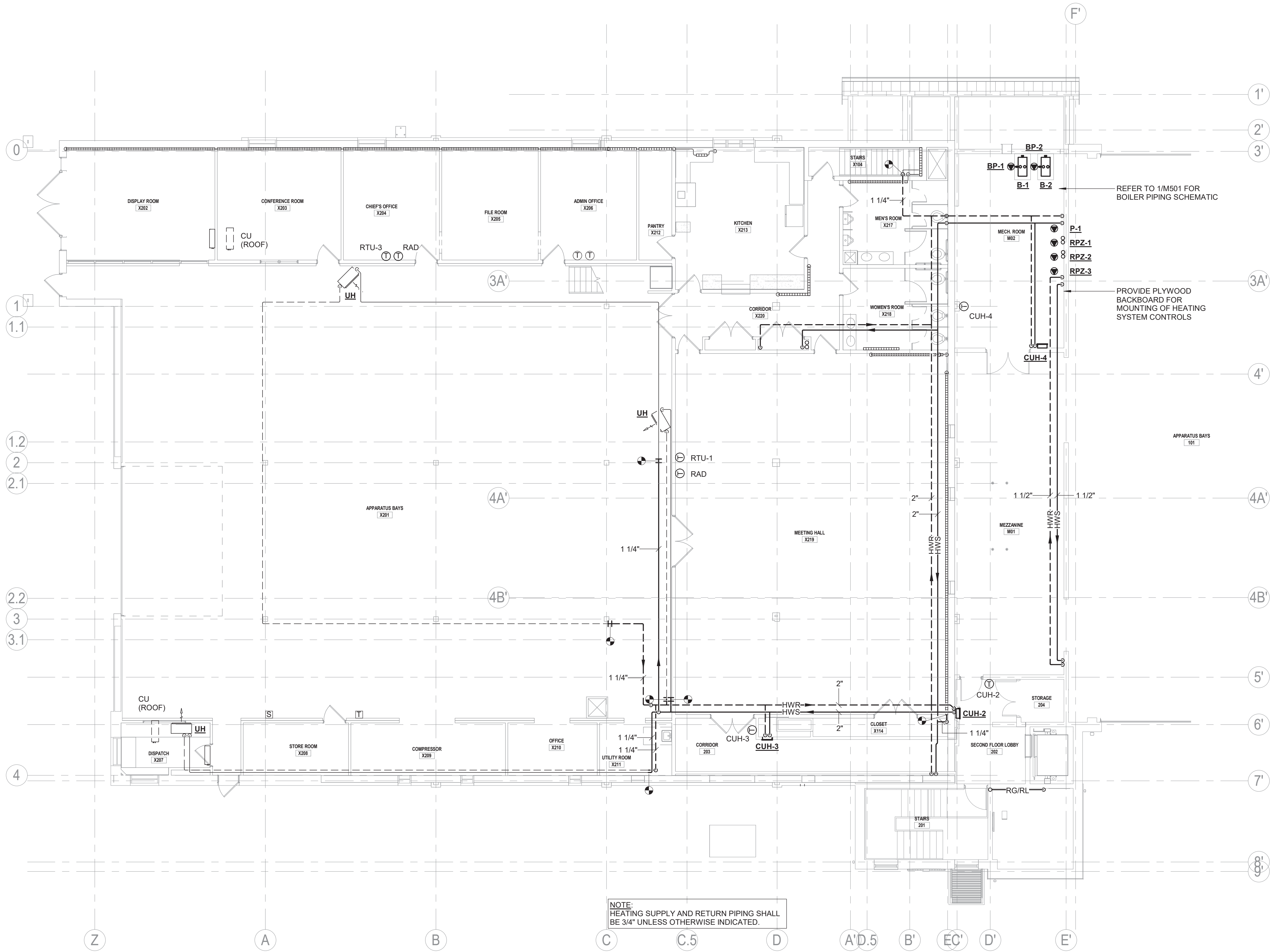
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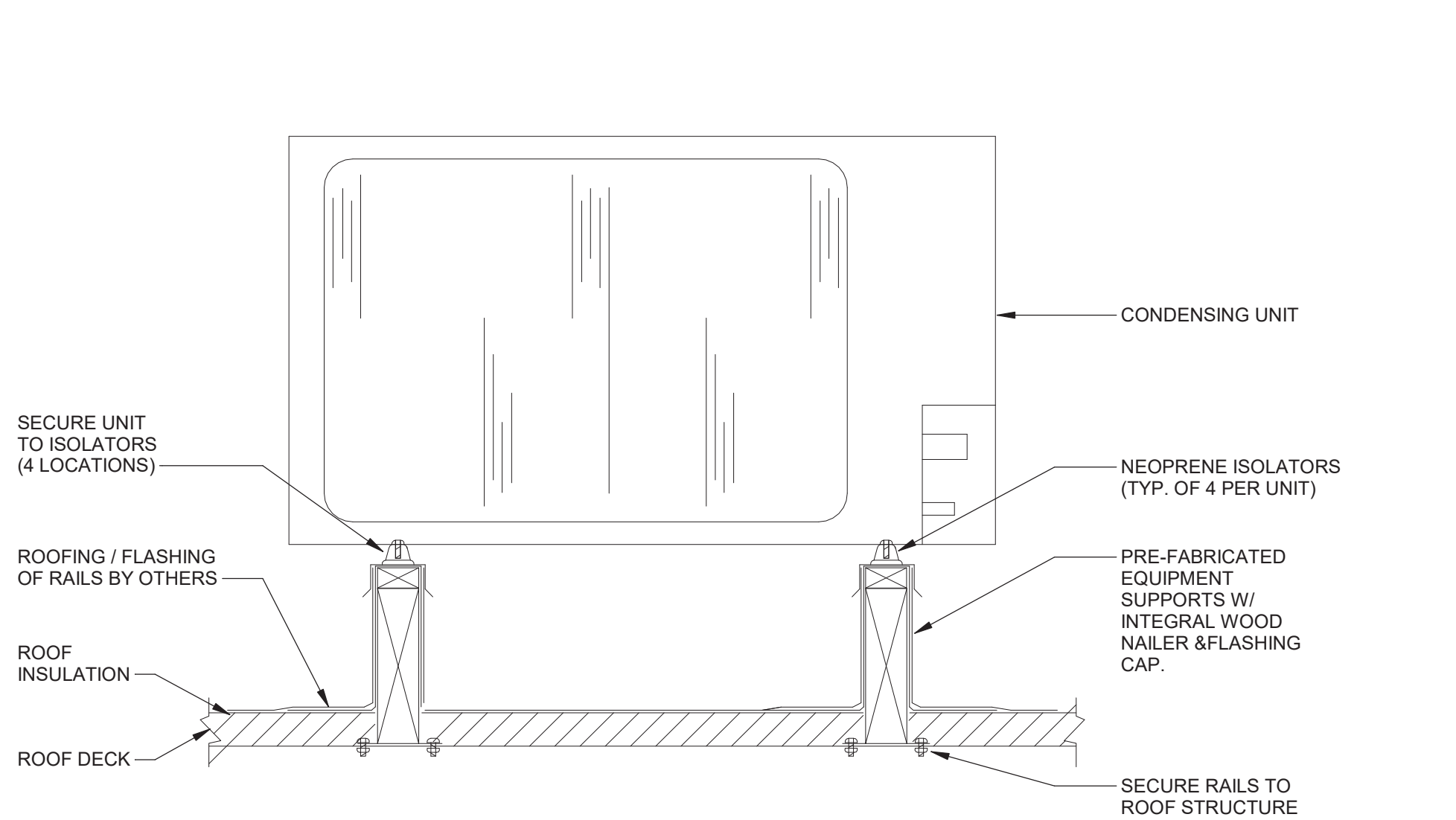
SHEET TITLE  
SECOND FLOOR  
MECHANICAL PIPE PLAN

DRAWING No.  
M 202

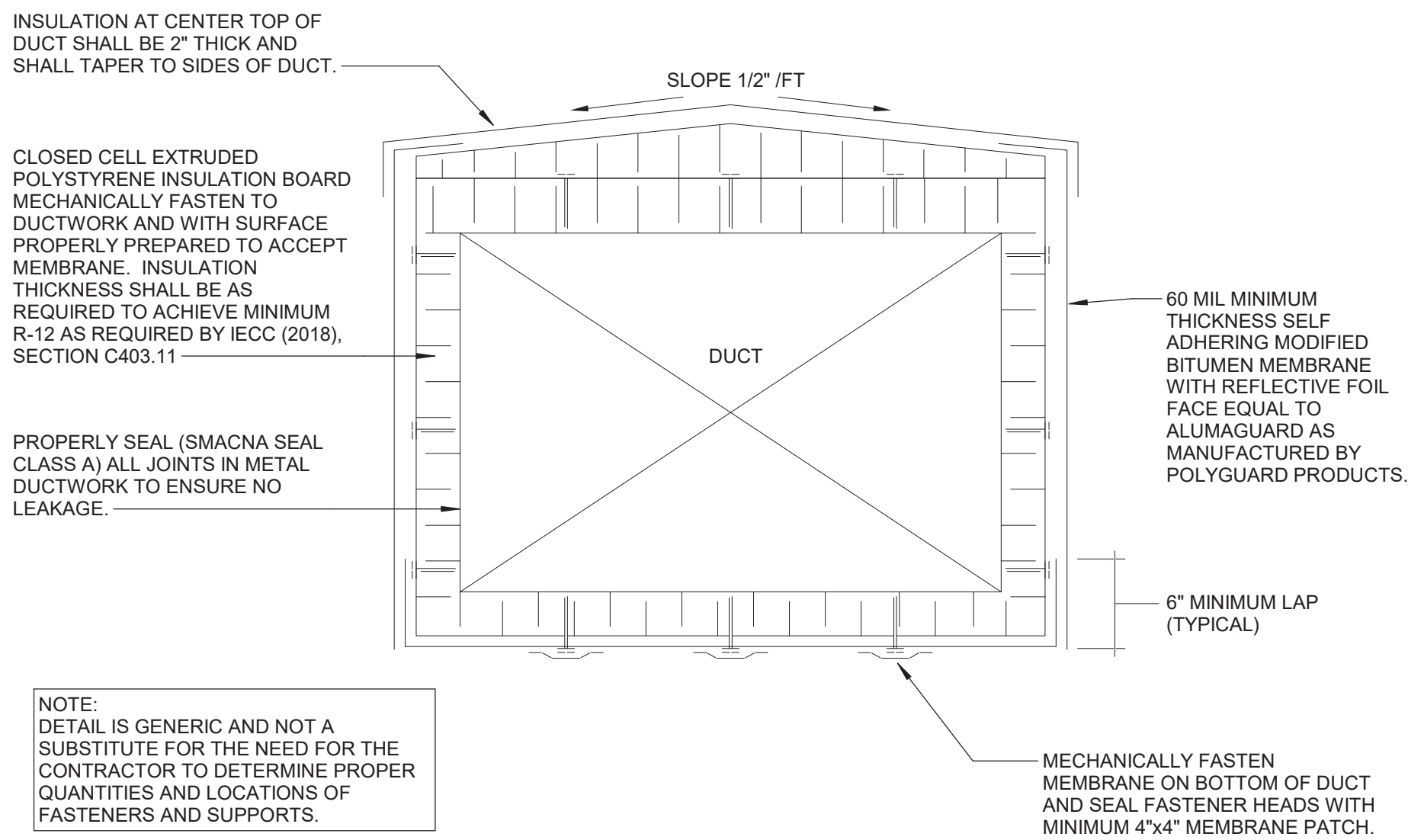


1 SECOND FLOOR MECHANICAL PIPE PLAN  
1/8" = 1'-0"

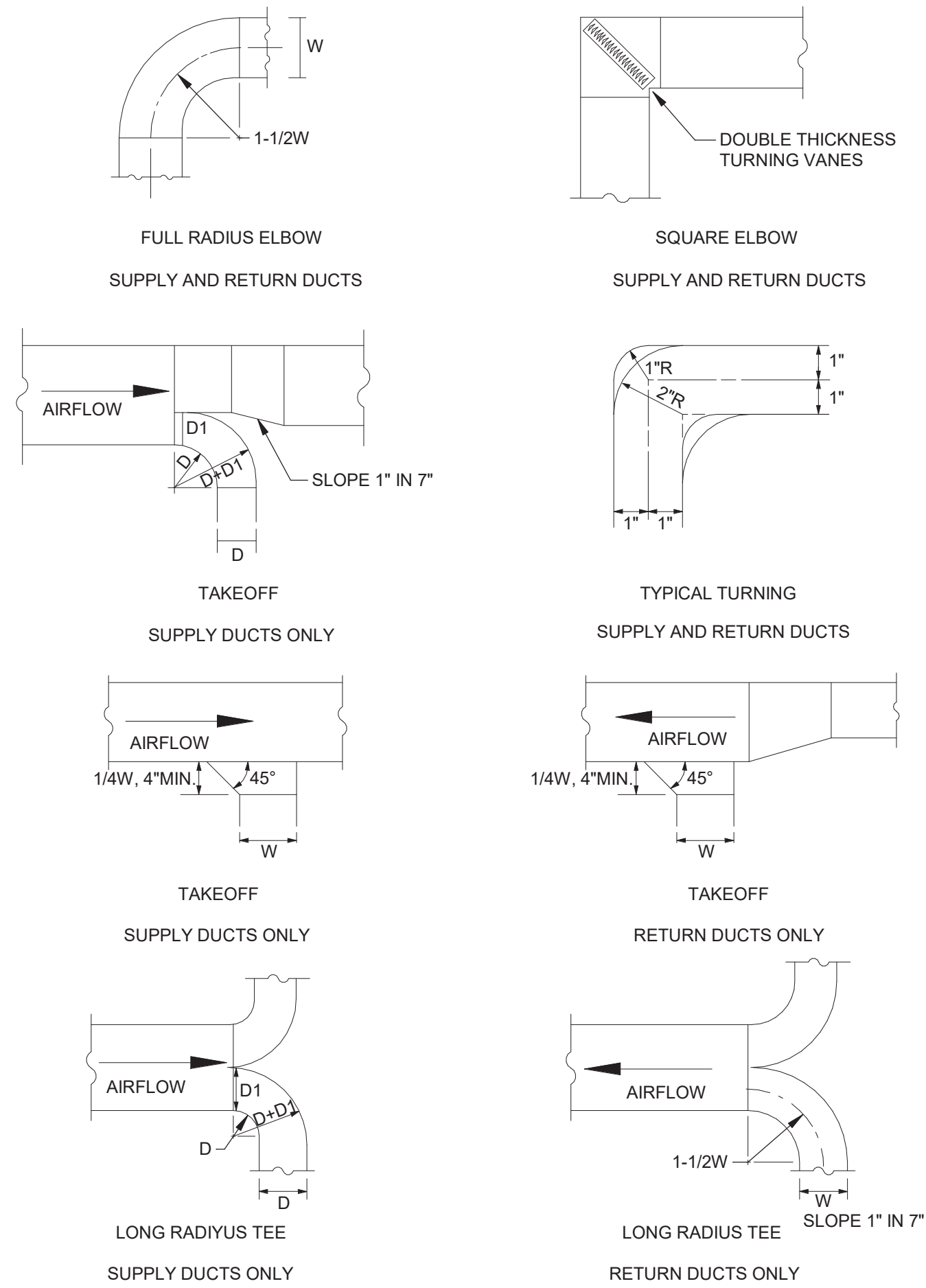




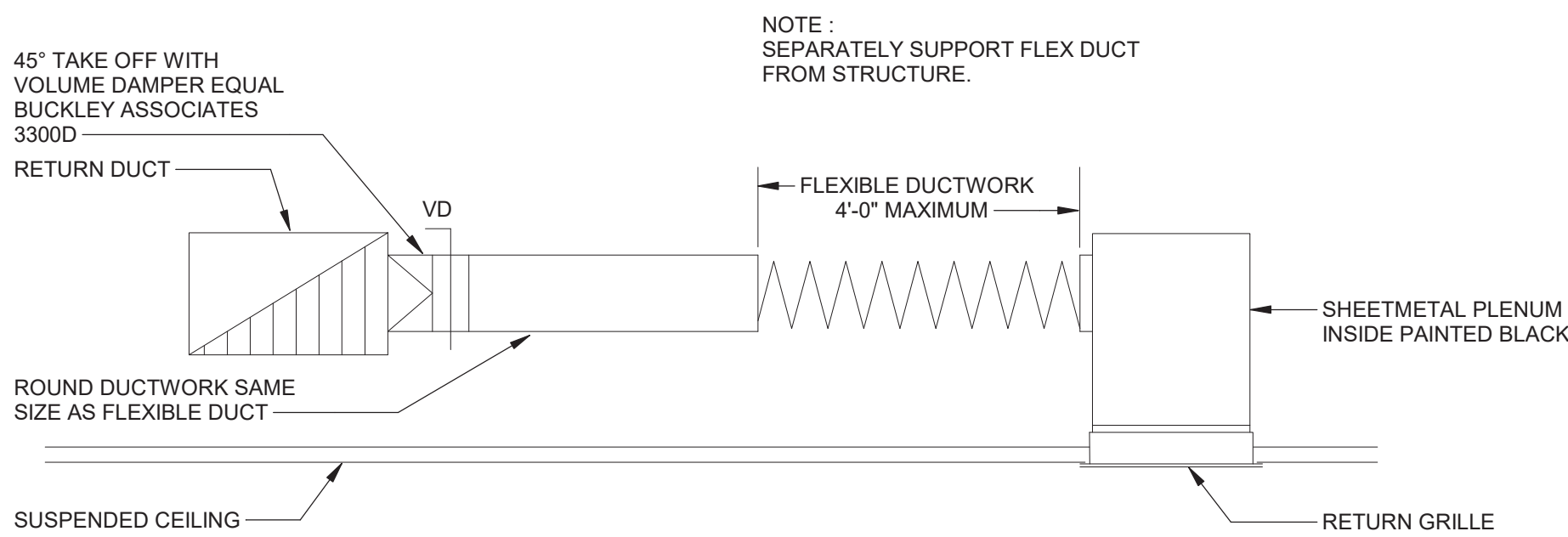
1 TYPICAL ROOF MOUNTED CONDENSING UNIT DETAIL  
NOT TO SCALE



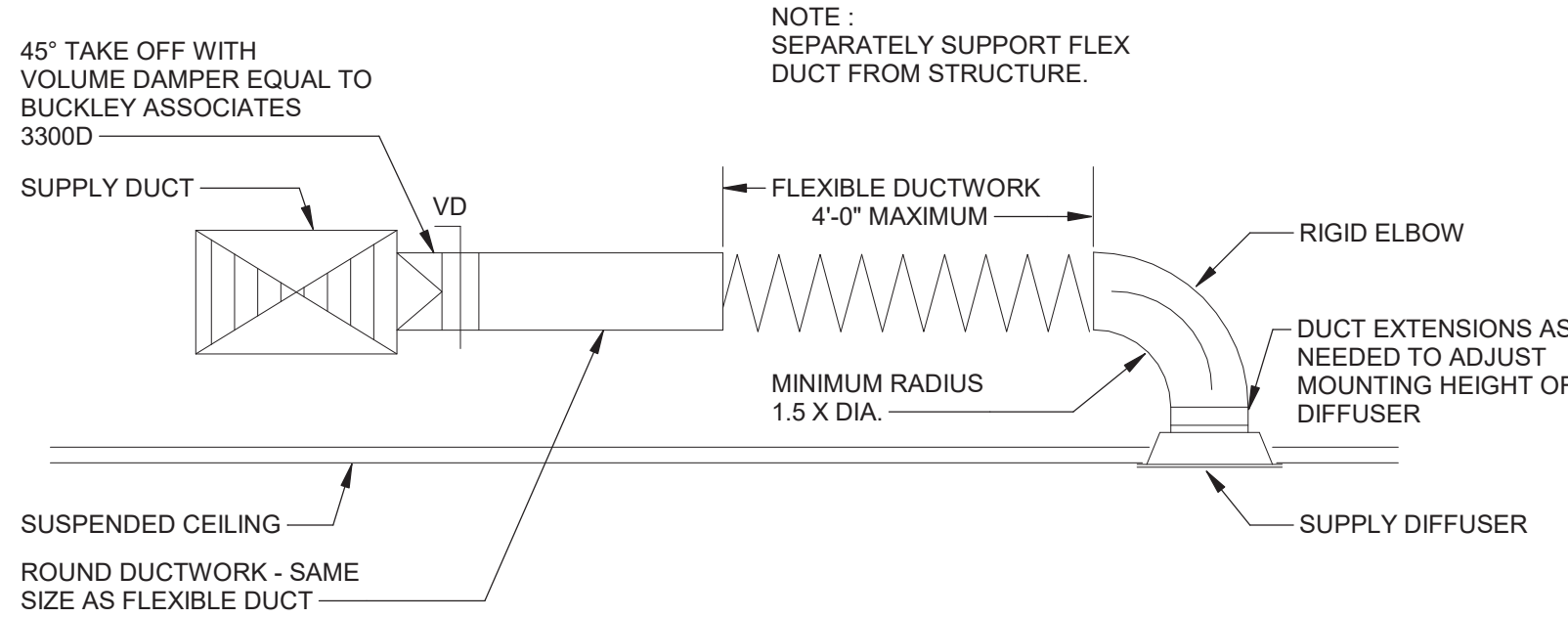
2 EXTERIOR DUCT INSULATION DETAIL  
12" = 1'-0"



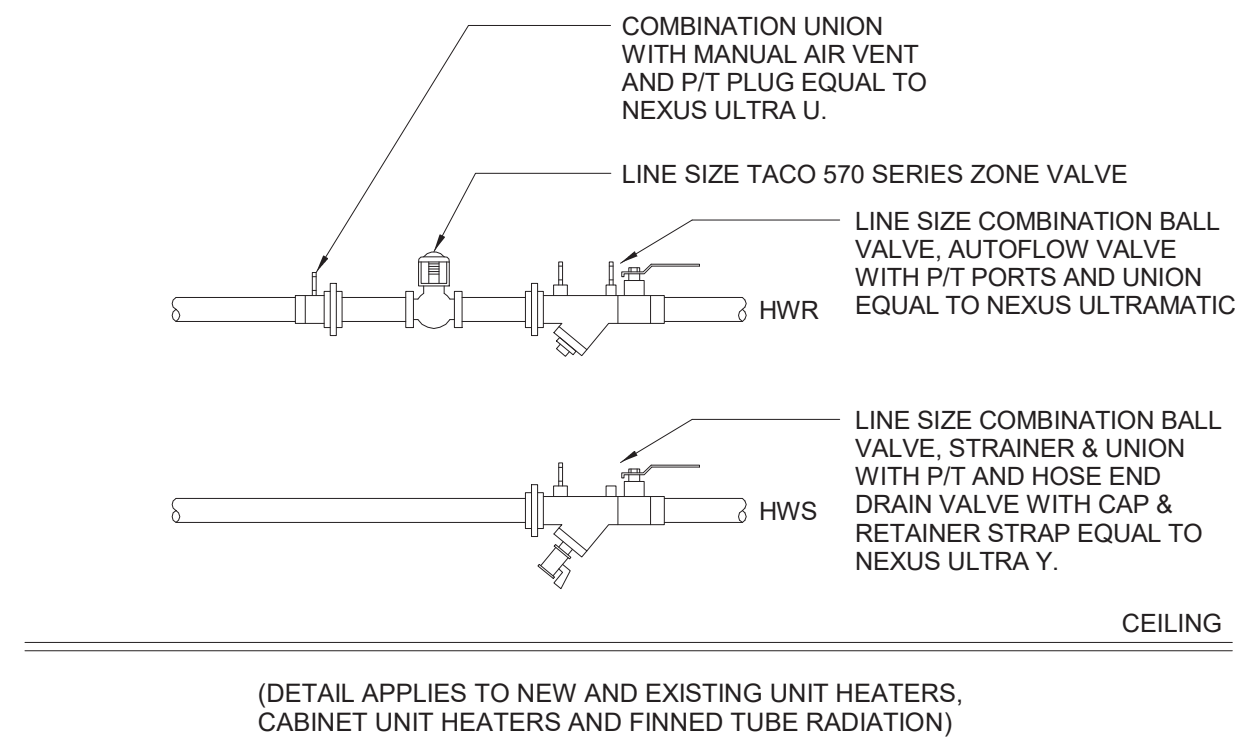
3 TYPICAL DUCT DETAILS  
NTS



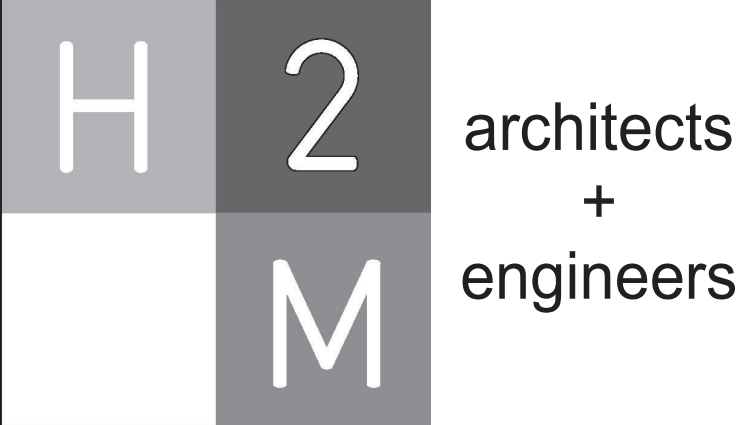
4 TYPICAL CEILING MOUNTED RETURN AIR GRILL DETAIL  
NTS



5 TYPICAL CEILING MOUNTED SUPPLY DIFFUSER DETAIL  
NTS



6 TERMINAL HEATING UNIT PIPING DETAIL  
NOT TO SCALE



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ADDITION/RENOVATION



94 GLENEIDA AVE,  
CARMEL HAMLET NY, 10512

CONTRACT	CONTRACT G GENERAL CONSTRUCTION
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STATUS	BID SET
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SHEET TITLE	MECHANICAL DETAILS
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DRAWING No.	M 301
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ROOFTOP UNIT SCHEDULE																													
TAG	MANUFACTURER	MODEL	OUTSIDE AIRFLOW		FANS SUPPLY				COILS (REFER TO COIL SCHEDULES)					GAS-FIRED HEAT EXCHANGER				EFFICIENCY			ELECTRICAL DATA				REMARKS				
			MAX (CFM)	MIN (CFM)	FLOW (CFM)	ESP (in-wg)	TSP (in-wg)	POWER (hp)	RPM	WATER	ELECTRIC	STEAM	D/X	CHILLED WATER	MAX. CAPACITY		PIPE PRESS.		AIRSIDE		SEER	EER	IEER	MCA		MOCP	VOLT	PH	
															INPUT (BTUH)	OUTPUT (BTUH)	MIN (in-wg)	MAX (in-wg)	EAT(db) (°F)	LAT(db) (°F)									
RTU-1	CARRIER	48HCD11	825	0	4000	0.75	0.95	2.59	982	No	No	No	Yes	No	180,000	148,000	4.00	13.00	56.4	90.4	16	12	14.3	54 A	60 A	208 V	3	1, 3, 4, 5, 6, 7, 8, 9, 13, 15	
RTU-2	CARRIER	48GCM05	400	0	1600	1.50	1.58	1.45	2382	No	No	No	Yes	No	67	54	4.00	13.00	53.0	84.4	16	12		26 A	30 A	208 V	3	2, 3, 4, 5, 7, 10, 11, 14, 15	
RTU-3	CARRIER	48GCM04	100	100	1200	1.50	1.5	0.81	2234	No	No	No	Yes	No	67	54	4.00	13.00	64.3	106.3	16	12.5		24 A	30 A	208 V	3	2, 3, 4, 5, 10, 12, 14, 15	
NOTES: 1. UNIT CONFIGURATION: GAS HEAT / ELECTRIC COOLING, DOWNFLOW. 2. UNIT CONFIGURATION: GAS HEAT / ELECTRIC COOLING, HORIZONTAL AIR FLOW. 3. NON-FUSED DISCONNECT. 4. HINGED ACCESS PANELS AND UN-POWERED CONVENIENCE OUTLET. 5. ELECTRO MECHANICAL CONTROLS. 6. ENTHALPY ECONOMIZER WITH BAROMETER RELIEF. 7. CARBON DIOXIDE SENSOR (UNIT MOUNTED IN RETURN). 8. 2-SPEED INDOOR FAN CONTROLLER (VFD).															D/X COOLING COIL SCHEDULE - AHU/ERU/MAU/RTU														
																				COOLING COIL									
															CAPACITY (MBH)			AIRSIDE											
															TAG	TOTAL	SENSIBLE	FLOW (CFM)	EAT(db) (°F)	EAT(wb) (°F)	LAT(db) (°F)	LAT(wb) (°F)	REMARKS						
															RTU-1	118.9	91.3	4000	79.3	66.5	58.0	57.1							
															RTU-2	49.9	36.9	1600	80.0	67.0	58.5	57.2							
															RTU-3	33.6	24.4	1200	77.3	65.0	58.4	55.9							

FAN SCHEDULE																
TAG	MANUFACTURER	MODEL	SERVES	TYPE	FAN				MOTOR POWER		SOUND PRESS LEVEL (dBA)	SONES	ELECTRICAL DATA		REMARKS	
					FLOW (CFM)	ESP (in-wg)	RPM	DRIVE TYPE	HP	WATTS			VOLT	PH		
EF-1	FANTECH	FG 8 EC	SHOWER 110	IN-LINE	150	0.50	0	DIRECT	■	71	0	0.0	120 V	1	1, 2	
EF-2	FANTECH	FG 12 EC	GEAR 106	IN-LINE	500	0.50	0	DIRECT		136	0	0.0	120 V	1	1, 2	
EF-3	FANTECH	FG 12 EC	DECON 112	IN-LINE	500	0.50	0	DIRECT		136	0	0.0	120 V	1	1, 2	
EF-4	GREENHECK	G-163-VG	SCBA 108	ROOF	2000	0.50	945	DIRECT	1/3	■	61	10.7	120 V	1	2, 3, 4, 5	
EF-5	GREENHECK	SP-A50-A90-VG	WOMENS E103	CEILING	70	0.25	0	DIRECT	■	7.6	0	0.9	120 V	1	2, 6	
EF-6	GREENHECK	SP-A90-A130-VG	WOMENS E102	CEILING	110	0.25	0	DIRECT		12.7	0	1.3	120 V	1	2, 6	
NOTES: 1. FANTECH MODEL RSK BACKDRAFT DAMPER. 2. EC MOTOR WITH POTENTIOMETER FOR BALANCING. 3. UL/CUL 705 LISTED - "POWER VENTILATORS" 4. NEMA 1 DISCONNECT SWITCH WITH JUNCTION BOX MOUNTED AND WIRED. 5. 24" HIGH GALVANIZED ROOF CURB WITH GRAVITY BACK DRAFT DAMPER, GREENHECK WD-100. 6. BUILT-IN BACKDRAFT DAMPER.																

DUCTLESS SPLIT SYSTEM SCHEDULE													
TAG	MANUFACTURER	MODEL	NOMINAL CAPACITY		EFFICIENCY				ELECTRICAL DATA				REMARKS
			COOLING (BTUH)	HEATING (BTUH)	SEER	EER	HSPF	COP	MCA	MOCP	VOLT	PH	
HP-1	FUJITSU	AOUG09LZAH1	9,000	12,000	33.1	18	14	18.2	14.4 A	15 A	208 V	1	1
HP-2	FUJITSU	AOU18RLXFZ	18,000	22,000	18	12.5	9.03	11.7	13 A	15 A	208 V	1	2
FC-1	FUJITSU	ASUG09LZAS											
FC-2	FUJITSU	AU09RLF											
FC-3	FUJITSU	AU09RLF											
NOTES: 1. PROVIDE MODEL UTY-RNRUZ4 WIRED REMOTE CONTROLLER. 2. PROVIDE MODEL UTY-RNNUM WIRED REMOTE CONTROLLER. CONTROLLER SHALL OPERATE BOTH INDOOR UNITS AS A SINGLE UNIT.													

GRAVITY VENTILATOR SCHEDULE										
TAG	MANUFACTURER	MODEL	TYPE	FLOW (CFM)	ESP (in-wg)	THROAT AREA (SQ. FT)	CURB HEIGHT	SERVES		REMARKS
GV-1	GREENHECK	GRSR-16	RELIEF	1230	0.08	1.45	24"	EF-1, EF-2, EF-3		1, 2
GV-2	GREENHECK	GRSR-10	RELIEF	406	0.06	0.57	18"	EXISTING BATHROOM FANS		1, 2
<u>NOTES:</u> 1. GALVANIZED STEEL ROOF CURB. 2. GRAVITY BACKDRAFT DAMPER.										

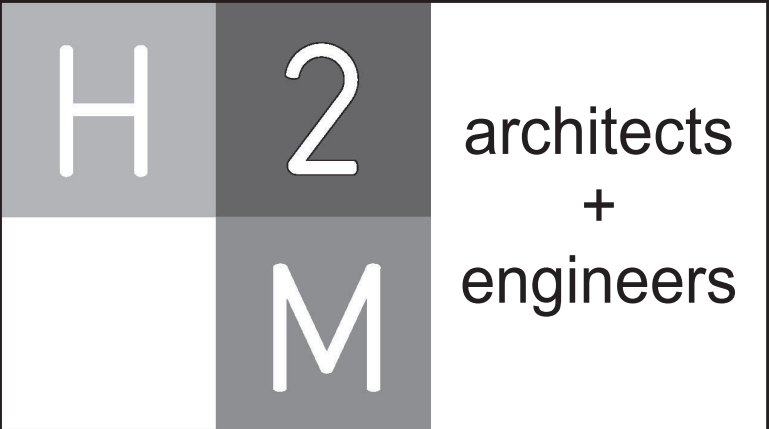
ELECTRIC WALL HEATER SCHEDULE								
TAG	MANUFACTURER	MODEL	TYPE	FAN (CFM)	ELECTRICAL DATA			REMARKS
					KW	VOLT	PH	
EW-H-1	BERKO	FRC1512F	SURFACE MOUNT	100	1.5	120 V	1	1, 2, 3
NOTES: 1. BUILT-IN TAMPER RESISTANT THERMOSTAT. 2. INTEGRAL DISCONNECT SWITCH. 3. MODEL FR5MPB SURFACE MOUNTING FRAME.								

GRILLES, DIFFUSERS AND REGISTERS SCHEDULE									
SEE ARCHITECTURAL DRAWINGS FOR CEILING TYPES AND CONSTRUCTION. SIZE AND CFM INDICATED ON MECHANICAL DRAWINGS									
A - PRICE MODEL SMD DIRECTIONAL DIFFUSER, LOUVERED FACE, 4-WAY THROW (UNLESS SHOWN OTHERWISE), 24X24 MODULE SIZE, LAY-IN BORDER, STEEL CONSTRUCTION, WHITE FINISH. PROVIDE MODEL SR ADAPTER.									
B - PRICE MODEL 530 RETURN GRILLE, 45° FIXED LOUVERS, 3/4" BLADE SPACING, 24X24 MODULE SIZE, LAY-IN BORDER, STEEL CONSTRUCTION, WHITE FINISH.									
B1 - PRICE MODEL 530 RETURN GRILLE, 45° FIXED LOUVERS, 3/4" BLADE SPACING PARALLEL TO LONG DIMENSION, SURFACE MOUNT BORDER, STEEL CONSTRUCTION, WHITE FINISH.									

CEILING STRATIFICATION FAN SCHEDULE								
TAG	MANUFACTURER	MODEL	BLADE SWEEP	Max Airflow	WATTS	VOLT	PH	REMARKS
CF-1	LEADING EDGE	56001	56"	27500	110	120 V	1	
CF-2	LEADING EDGE	56001	56"	27500	110	120 V	1	
CF-3	LEADING EDGE	56001	56"	27500	110	120 V	1	
CF-4	LEADING EDGE	56001	56"	27500	110	120 V	1	
NOTES:								
1. PROVIDE SOLID STATE SPEED CONTROL TO CONTROL ALL FANS AS ONE SYSTEM.								

GAS-FIRED BOILER SCHEDULE																			
TAG	MANUFACTURER	MODEL	TYPE	GAS-FIRED HEAT EXCHANGER											THERMAL EFF (%)	ELECTRICAL DATA			REMARKS
				GAS BURNER				WATERSIDE								FLA	VOLT	PH	
				INPUT (BTUH)	OUTPUT (BTUH)	TURN DOWN	TYPE	FUEL PRESSURE (in-wg)		FLOW (GPM)	EWT (°F)	LWT (°F)	PD (FT)	VOL (GAL)					
								MIN	MAX										
B-1	HTP	EP-399	CONDENSING	399,000	385,000	10	NG	3.5	14	30	160	180	17	3.7	96.5	6.3 A	120 V	1	ALL
B-2	HTP	EP-399	CONDENSING	399,000	385,000	10	NG	3.5	14	30	160	180	17	3.7	96.5	6.3 A	120 V	1	ALL
NOTES: 1. PROVIDE CONDENSATE NEUTRALIZING TUBES. 2. PROVIDE MANUAL RESET HIGH LIMIT. 3. PROVIDE LOW WATER CUT-OFF.																			

PUMP SCHEDULE											
TAG	MANUFACTURER	MODEL	PUMP				MOTOR	ELECTRICAL DATA		REMARKS	
			TYPE	FLOW (GPM) DESIGN	HEAD (FT)	DRIVE TYPE	POWER WATTS	VOLT	PH		
BP-1	TACO	VR15-3	IN-LINE	30.00	20.0	ECM	500	115 V	1		
BP-2	TACO	VR15-3	IN-LINE	30.00	20.0	ECM	500	115 V	1		
P-1	TACO	VR20-3	IN-LINE	40.00	30.0	ECM	800	208 V	1		
RPZ-1	TACO	VR3452	IN-LINE	5.00	15.0	ECM	180	115 V	1		
RPZ-2	TACO	VR3452	IN-LINE	12.00	20.0	ECM	180	115 V	1		
RPZ-3	TACO	VR3452	IN-LINE	12.00	20.0	ECM	180	115 V	1		
NOTES: 1.											



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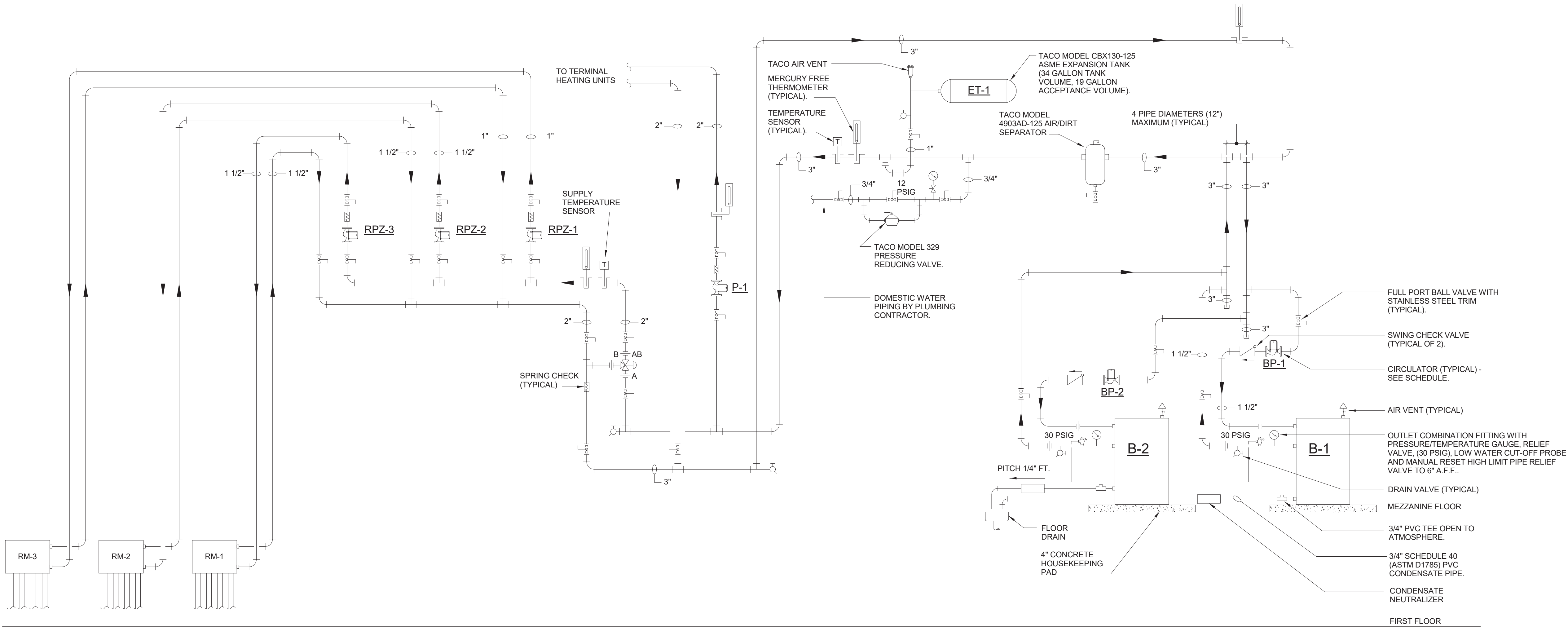
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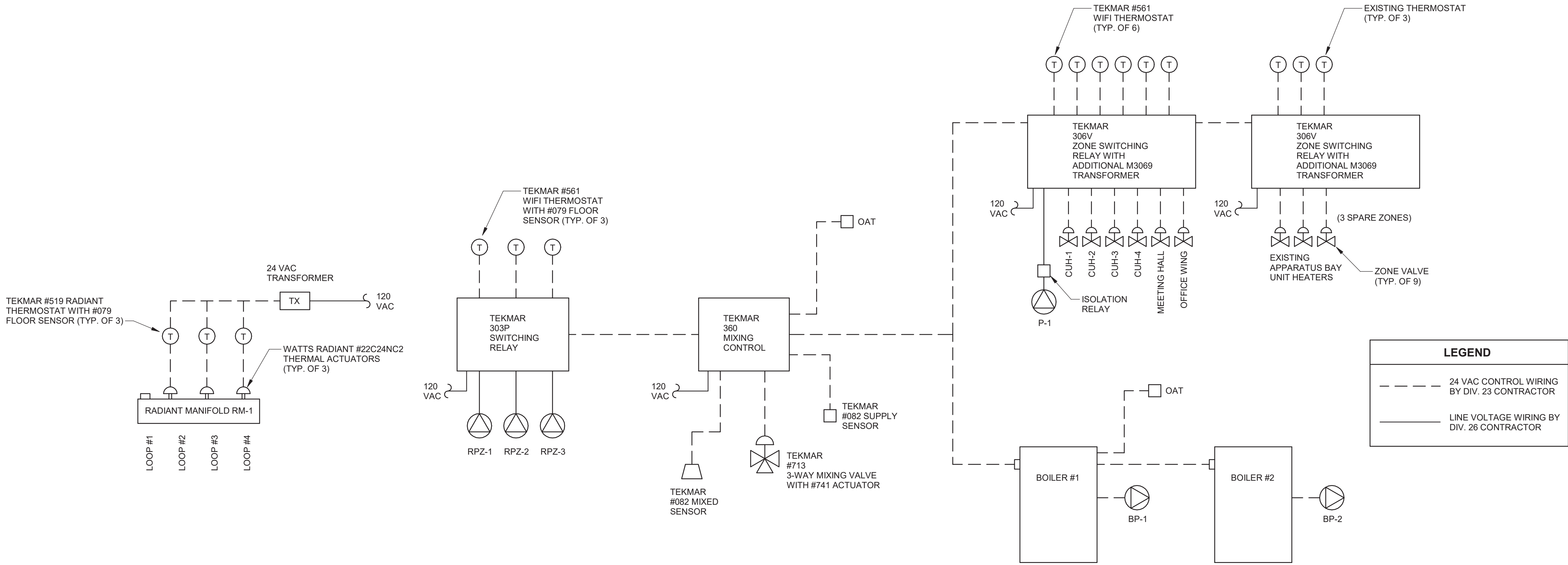
STATUS  
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SHEET TITLE  
MECHANICAL  
SCHEMATICS

DRAWING No.  
M 501



1 BOILER PIPING SCHEMATIC  
1/8" = 1'-0"



2 HEATING SYSTEM CONTROL SCHEMATIC  
1/8" = 1'-0"